

Application No.: 10/688,810
Amendment dated July 5, 2005
Reply to Office Action of April 5, 2005

Remarks:

Claims 6-14 are in the application. Claim 6 is in independent form. Claim 1-5 and 15-20 were withdrawn as directed to a non-elected invention and cancelled by this amendment.

Claim 7-9, 11-12, and 14 are objected to for being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitation of the base claim and any intervening claim. Applicants thank the Examiner for the indication of allowable subject matter.

Amendment to the Drawings:

The drawings stand objected to for failing to show every feature of the invention specified in the claims. Paragraph 1044 is amended to clarify that the source 414 shown schematically in FIG. 4 could be a plasma microbeam source.

Claim objections:

Claim 7 stands objected to for a lack of antecedent basis for "the target plane." Amended claim 7 recited "a target plane."

Claim rejections – 35 USC 103:

Claims 6 and 13 stand rejected under 35 USC 103(a) for obviousness over U.S. Pat. No. 5,825,035 to Mizumura et al. ("Mizumura") in view of U.S. Pat. No. 5,065,034 to Kawanami et al. ("Kawanami").

Claim 6 recites: "an aperture having at least one straight edge and being disposed within the column and dimensioned to produce a shaped charged particle beam at the target, said shaped beam having at least one sharp edge corresponding to the at least one aperture straight edge."

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Kawanami teaches the use of two overlapping slits to produce a rectangular aperture and thus teaches an aperture having a straight edge. Kawanami does not teach using such aperture to produce the claim "shaped beam having at least one sharp edge." Kawanami use the overlapping slit aperture to approximate a round aperture to produce a tightly focused Gaussian beam, not a shaped beam. FIG. 2 of Kawanami shows a prior art Gaussian beam and the problem that exists when the prior art aperture is not precisely aligned. Kawanami's solution is to define the aperture by two slits, so that the aperture is rapidly aligned, without having to precisely position either of the two overlapping slits. There are several indications in Kawanami that he is not producing a shaped beam having at least one sharp edge. For example, Table 1 illustrates that by saving the ten minutes required for a prior art aperture change, Kawanami can use a small diameter beam for observation and rapidly switch to a large diameter beam for forming a pattern. Table 1 describes using a large beam diameter for formation of a pattern as taking 20 minutes, the same time as required by the large beam diameter of the prior art in line 1. Thus, based on the diameter and processing time in Table 1, he appears to be using a beam that is about the same as the prior art beam in FIG. 2.

Applicants submits that claim 13 is patentable for the reasons described above with respect to parent claim 6.

Claim 10 stands rejected under 35 USC 103(a) for obviousness over Mizumura and Kawanami in further view of Nixon. Applicants submit that claim 13 is patentable for the reasons described above with respect to parent claim 6.

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Applicants submit that the application is in condition for allowance and respectfully requests the application be allowed.

Respectfully submitted,



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